

1. A system for automatically controlling the build-up of material on a substrate, comprising:
 - 2 a controllable semiconductor diode laser having a beam directed to a localized region of the substrate so as to form a melt pool thereon;
 - 4 a material feeder for feeding material into the melt pool to be melted by the beam
 - 6 to create a deposit having a physical attribute;
 - 8 an optoelectric sensor operative to output an electrical signal as a function of the physical attribute; and
 - 10 a feedback controller operative to automatically adjust the rate of material deposition as a function of the electric signal.